AMENDMENTS TO THE CLAIMS

Please amend claims 32 and 53. No new matter is believed to be introduced by the aforementioned amendments. The following listing of claims will replace all prior versions and listings of claims in the application.

1-31. **(Canceled)**

32. **(Currently Amended)** An optoelectronic device, comprising:

a substrate;

a first DBR mirror formed on the substrate;

an active region formed over the first DBR ~~layer~~ mirror; and

a second DBR mirror formed over the active region, the second DBR mirror comprising:

a first DBR mirror layer;

a second DBR layer having an insulating layer defining an aperture formed therein, the second DBR layer having a doping level that is higher than a doping level of the first DBR mirror layer; and

an isolation implant region extending around, and spaced outwardly from, the perimeter of at least part of the aperture of the insulating layer and traversing through the insulating layer and at least some of the DBR mirror layers.

33. **(Previously Presented)** An optoelectronic device according to claim 32 wherein the second DBR layer is formed over the first DBR mirror layer.

34. **(Previously Presented)** An optoelectronic device, according to claim 32 wherein the isolation implant region extends entirely around the perimeter of the aperture of the insulating layer.

35. **(Previously Presented)** An optoelectronic device according to claim 32 wherein the isolation implant region defines an aperture that is larger than the aperture of the insulating layer.

36. **(Previously Presented)** An optoelectronic device according to claim 35, further comprising a third DBR layer formed over the second DBR layer, the third DBR layer having substantially isotropic conductivity.

37. **(Previously Presented)** An optoelectronic device according to claim 32 wherein the isolation implant region is implanted with protons.

38. **(Previously Presented)** An optoelectronic device, comprising:

a first mirror;

a second mirror;

one or more heat conduction layers formed between the first mirror and the second mirror, at least one of the heat conduction layers being periodically doped to maximize doping at minima of electric fields in the optoelectronic device;

an active region situated between the first mirror and the second mirror;

an insulating layer positioned in or adjacent to the first mirror, the insulating layer defining an aperture; and

an isolation implant region extending around, and spaced outwardly from, at least part of the aperture of the insulating layer and traversing through the insulating layer and at least part of the first mirror.

39. **(Previously Presented)** An optoelectronic device according to claim 38 wherein the isolation implant region also traverses through the active region.

40. **(Previously Presented)** An optoelectronic device according to claim 39 wherein the isolation implant region traversed through the active region and at least partially into the second mirror.

41. **(Previously Presented)** An optoelectronic device according to claim 38 wherein the isolation implant region extends entirely around the perimeter of the aperture of the insulating layer.

42. **(Previously Presented)** An optoelectronic device according to claim 38 wherein the isolation implant region defines an aperture that is larger than the aperture of the insulating layer.

43. **(Previously Presented)** An optoelectronic device according to claim 42 wherein the aperture of the isolation implant region is substantially coaxial with the aperture of the insulating layer.

44. **(Previously Presented)** An optoelectronic device according to claim 38, wherein the first mirror comprises:

a first DBR layer that has substantially isotropic conductivity;

a second DBR layer including the insulating layer, the second DBR layer having a doping level to minimize series resistance and heating effects in the aperture; and

a third DBR layer formed over the second DBR layer.

45. **(Previously Presented)** An optoelectronic device according to claim 38 wherein the optoelectronic device is a Vertical Cavity Surface Emitting Laser (VCSEL).

46. **(Previously Presented)** A method for forming an optoelectronic device, the method comprising the steps of:

providing a lower mirror;

providing an active region above the lower mirror;

providing a first DBR layer in an upper mirror above the active region, the first DBR layer having a first doping level;

providing a second DBR layer in the upper mirror, the second DBR layer including an insulating layer that defines an aperture, the second DBR layer further having a second doping level that is higher than the first doping level; and

providing an isolation implant in an implant region, wherein the implant region extends around, and is spaced outwardly from, at least part of the aperture of the insulating layer and traverses down through at least part of the upper mirror and through the insulating layer.

47. **(Previously Presented)** An optoelectronic device according to claim 46 wherein the isolation implant region traverses through the active region.

48. **(Previously Presented)** An optoelectronic device according to claim 47 wherein the isolation implant region traversed through the active region and at least partially into the lower mirror.

49. **(Previously Presented)** An optoelectronic device according to claim 46 wherein the isolation implant region extends entirely around the perimeter of the aperture of the insulating layer.

50. **(Previously Presented)** An optoelectronic device according to claim 46 wherein the isolation implant region defines an aperture that is larger than the aperture of the insulating layer.

51. **(Previously Presented)** An optoelectronic device according to claim 50 wherein the aperture of the isolation implant region is substantially coaxial with the aperture of the insulating layer.

52. **(Previously Presented)** An optoelectronic device according to claim 46 wherein the isolation implant region is implanted with protons.

53. **(Currently Amended)** An optoelectronic device according to claim 46 further comprising:

providing a third DBR layer formed above the second DBR layer; and

providing one or more conduction layers formed between the lower mirror and the upper mirror, the one or more conduction layers being periodically doped such that heavy doping occurs [[an]] <u>at</u> nulls of an electric field in the optoelectronic device, wherein the optoelectronic device is a Vertical Cavity Surface Emitting Laser (VCSEL).